

WHAT IS CLAIMED IS:

1. A method of producing polyvinyl alcohol polymer, in which a polyvinyl ester is saponified in an alcohol-containing organic solvent under the presence of a saponification catalyst, said method of producing polyvinyl alcohol polymer being characterized in that the saponification reaction is carried out while distilling off the carboxylic acid ester that is produced by the saponification reaction.
2. A method of producing polyvinyl alcohol polymer as set forth in Claim 1 wherein said saponification reaction is comprised of a primary saponification reaction, in which a saponification reaction is carried out by mixing the polyvinyl ester in an alcohol-containing organic solvent under the presence of a saponification catalyst, and a subsequent secondary saponification reaction, in which a saponification reaction is carried out while distilling off the carboxylic ester that is produced.
3. A method of producing polyvinyl alcohol polymer as set forth in Claim 2, wherein the degree of saponification attained in said primary saponification reaction is 70 mole % or more and the concentration of the polyvinyl alcohol polymer in the saponification reaction solution is 10wt% or more.
4. A method of producing polyvinyl alcohol polymer as set

forth in Claim 2 or 3, wherein the degree of saponification attained in said secondary saponification reaction is 85 mole % or more and the concentration of the polyvinyl alcohol polymer in the saponification reaction solution is 10wt% or more.

5. A method of producing polyvinyl alcohol polymer as set forth in Claim 2, wherein said saponification reaction is comprised of a first stage saponification process, comprised in turn of a primary saponification reaction, in which a saponification reaction is carried out by mixing the polyvinyl ester in the alcohol-containing organic solvent under the presence of a saponification catalyst, and a subsequent secondary saponification reaction, in which a saponification reaction is carried out while distilling off the carboxylic ester that is produced, and a subsequent second stage saponification process, comprised in turn of a primary saponification reaction, in which a saponification reaction is carried out by mixing the polyvinyl ester in the alcohol-containing organic solvent under the presence of a saponification catalyst, and a subsequent secondary saponification reaction, in which a saponification reaction is carried out while distilling off the carboxylic ester that is produced.

6. A method of producing polyvinyl alcohol polymer as set

forth in Claim 5, with which, in said primary saponification reaction of the first stage, the degree of saponification attained is 70 mole % or more and the concentration of the polyvinyl alcohol polymer in the saponification reaction solution is 10wt% or more.

7. A method of producing polyvinyl alcohol polymer as set forth in Claim 5 or 6, with which, in said secondary saponification reaction of the first stage, the degree of saponification attained is 85 mole % or more and the concentration of the polyvinyl alcohol polymer in the saponification reaction solution is 10wt% or more.

8. A method of producing polyvinyl alcohol polymer as set forth in any of Claims 5 through 7, with which, in said primary saponification reaction of the second stage, the degree of saponification attained is 93 mole % or more and the concentration of the polyvinyl alcohol polymer in the saponification reaction solution is 10wt% or more.

9. A method of producing polyvinyl alcohol polymer as set forth in any of Claims 5 through 8, with which, in said secondary saponification reaction of the second stage, the degree of saponification attained is 99 mole % or more and the concentration of the polyvinyl alcohol polymer in the saponification reaction solution is 10wt% or more.

10. A method of producing polyvinyl alcohol polymer as set forth in any of Claims 2 through 9, wherein the saponification reactor for carrying out said primary saponification reaction is substantially a complete mixing type reactor.

11. A method of producing polyvinyl alcohol polymer as set forth in Claim 10, wherein said reactor is a kneader type mixer.

12. A method of producing polyvinyl alcohol polymer as set forth in any of Claims 1 through 11, wherein the saponification reactor for carrying out the saponification reaction while distilling off said carboxylic acid ester is substantially a piston-flow type reactor.

13. A method of producing polyvinyl alcohol polymer as set forth in Claim 12, wherein said reactor is a tower type reactor.

14. A method of producing polyvinyl alcohol polymer as set forth in Claim 13, wherein said tower type reactor is a packed tower or a tray tower.

15. A method of producing polyvinyl alcohol polymer as set forth in Claim 12, wherein said reactor is a heat-exchanging type reactor.

16. A method of producing polyvinyl alcohol polymer as set forth in Claim 15, wherein said heat-exchanging type reactor is a plate-fin type evaporator.

17. A method of producing polyvinyl alcohol polymer as set

forth in Claim 15, wherein said heat-exchanging type reactor is a falling film evaporator.

18. A method of producing polyvinyl alcohol polymer as set forth in Claim 15, wherein said heat-exchanging type reactor is a shell and tube evaporator.

19. A method of producing polyvinyl alcohol polymer as set forth in Claim 5, wherein the reactor for said secondary saponification reaction of the second stage is a shell and tube evaporator.

20. A method of producing polyvinyl alcohol polymer as set forth in any of Claims 1 through 19, wherein the limiting viscosity of said polyvinyl ester is 1.4dl/g or more.

21. A method of producing polyvinyl alcohol polymer as set forth in any of Claims 1 through 20, wherein said polyvinyl ester is polyvinyl acetate.

22. A method of producing polyvinyl alcohol polymer as set forth in any of Claims 1 through 21, wherein said organic solvent is at least one type of solvent selected from among dimethyl sulfoxide, dimethylformamide, dimethylacetamide, N-methylpyrrolidone, ethylenediamine, and diethylenetriamine.

23. A method of producing polyvinyl alcohol polymer as set forth in any of Claims 1 through 21, wherein said organic

solvent is dimethyl sulfoxide.

24. A method of producing polyvinyl alcohol polymer as set forth in any of Claims 1 through 23, wherein said saponification reaction is carried out with a mole ratio of alcohol with respect to polyvinyl alcohol of 0.5 to 5.5.

25. A method of producing polyvinyl alcohol polymer as set forth in any Claims 1 through 24, wherein said alcohol is methanol.

26. A method of producing polyvinyl alcohol polymer fiber in which the polyvinyl ester saponification process of any of Claims 1 through 25 is directly linked to a spinning process, in which the solution of polyvinyl alcohol polymer that is obtained by said saponification process is spun.

27. A polyvinyl alcohol polymer produced by a method of any of Claims 1 through 25.

28. A polyvinyl alcohol polymer with a block character value of 0.9 to 1.1.

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a1

add
c2